THE PRICE IS RIGHT

Brief Overview:

The students will estimate retail prices of chosen consumer products and compare their estimates with actual costs of the item.

Link to Standards:

- **Problem Solving** Students will use statistical methods to interpret consumer data.
- **Communication** Students will discuss possible prices and agree on an estimate. Worksheets also engage students in writing about what they are learning.
- **Reasoning** Students will employ logical mathematical procedures and conclusions will be followed with emphasis placed on inductive reasoning techniques.
- **Number Relationships** Students will analyze graphic points relative to line of best fit and draw conclusions based on residuals.
- **Statistics** Students will use collected data to make logical inferences and create mathematical models.

Grade/Level:

Grades 9-12 (Algebra I, Algebra II)

Duration/Length:

This activity will take 3 or 4 hours of class time. The lesson may take longer if the extensions are explored.

Prerequisite Knowledge:

Students should have working knowledge of the following:

- Cartesian coordinate graphing
- Basic linear graphing (y=mx+b)
- TI-82 statistics mode operations
- Consumer skills
- How to search the Internet

Objectives:

Students will:

- work cooperatively in groups.
- collect and organize data from resources.
- use inductive reasoning to formulate equations and conclusions.
- draw inference from statistical model and give appropriate support for their answer.

Materials/Resources/Printed Materials:

- Graph paper and overhead transparency
- Pencils
- Products
- TI-82 Calculator and Viewscreen
- Student worksheets:
  Price is Right Worksheet (Algebra I and Algebra II classes)
  Comparison Worksheet (Algebra I classes only).

Development/Procedures:

Class # 1 - Algebra I and Algebra II

1. Group students in homogeneous pairs.
2. Display any 10 items.
3. Complete Price is Right Worksheet.

Class # 2 - Algebra I

4. Display 5 items that are the same type of products, but different brand names. (i.e., - Paul Mitchell shampoo, Pantene shampoo, Flex shampoo, Suave shampoo, generic shampoo)
5. Complete Part 1 of the Comparison Worksheet.
6. Display 3 items that are same brand, but purchased at different stores (i.e., Duracell batteries bought at Dollar Store, Walmart, and Radio Shack at the mall).
7. Complete Part 2 and Part 3 of the Comparison Worksheet.

Class # 2 - Algebra II

4. Calculate and graph linear regression line using TI-82.
5. Calculate and graph residuals on TI-82
6. Total residual values ➔ smallest sum wins !!
7. Complete Parts 2 & 3 on comparison worksheet.

Evaluation:

Successful completion of worksheets and individual participation.

Extension/Follow Up:

1. Play a simulated “The Price is Right” game.
2. Access the Internet for Consumer Reports.
3. Create personal narrative describing an individual consumer experience.
4. Plan a field trip to investigate best prices at a local shopping center.

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THE PRICE IS RIGHT WORKSHEET

I. In the table below, list 10 items. After each item, write how much you think it costs.

	Item	Estimated Cost	Actual Cost	Difference
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____
10.	_____	_____	_____	_____

Sum of Differences_____

II. How well are you able to estimate the cost of these items? Make a scatter plot with your estimated cost on the x-axis and your actual cost on the y-axis.

III. Where will the points lie if all your estimates are correct? Draw that line and write the equation in slope-intercept form.

IV. What does it mean if a point is above the line? Below the line? Are you an over estimator or an under estimator?

V. Look at the scatter plots other students have drawn. Decide who is the best estimator and justify your choice.

VI. Calculate the absolute value difference, estimated cost minus actual cost. Write these numbers in the last column and find the sum. The student with the lowest sum is the best cost estimator.

COMPARISON WORKSHEET

Part 1: Consider these five items that are the same type of product but different brand names.

	Brand	Unit Cost
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

Range _____

Using data from the table above, create a line graph on the TI-82.

Part 2: Consider these three items that are identical, but purchased at different stores.

	Store Name	Unit Cost
1.	_____	_____
2.	_____	_____
3.	_____	_____

Range _____

Using data from the table above, create a histogram using the TI-82.

Part 3: Based on the comparisons in Part 1 and 2, explain the difference in prices. Write a one page summary justifying your opinions.